REMARKS

Claims 1, 14, 21, and 22 are amended. Claims 2 and 15 were previously canceled. Claims 7-11 are canceled hereby. No claims are added. Accordingly, after entry of this Amendment, claims 1, 3-6, 12-14, and 16-24 will remain under examination. Claims 25-33 are pending but are withdrawn from further consideration.

In the Final Office Action dated May 9, 2006, the Examiner rejected claims 1, 3-9, 11-12, 14, 16-18, and 23-24 under 35 U.S.C. § 103(a) as being unpatentable over Zhu et al. (U.S. Patent Application Publication No. 2005/0079710) in view of Suzuki (U.S. Patent Application Publication No. 2001/0048981). Claims 10, 13, and 19-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhu et al. in view of Suzuki and further in view of Mukherjee-Roy et al. (U.S. Patent Application Publication No. 2003/0216026) and Bao et al. (U.S. Patent Application Publication No. 2005/0130411). The Applicant respectfully disagrees with the rejections of the claims and, therefore, respectfully disagrees with the same.

In amending claims 1, 14, 21, and 22, the Applicant has changed the language with respect to the process gas to return the language to that language as originally presented. Since the Examiner did not accept the Applicant's arguments with respect to patentability of the previously-amended version of the claims, the Applicant returns the language to the language as originally presented. The Applicant intends for the amended language to have the broad scope of equivalents as though the language had not been amended previously.

With respect to the amendments presented herein, the Applicant respectfully notes that the recitation of the disposing or forming of the dielectric layer comprising at least one of hydrogen silsesquioxane and methyl silsesquioxane was previously presented by claim 10. Accordingly, the incorporation of these recitations in claims 1 and 14 does not present new matter such that the Examiner is or should be required to conduct additional searching. Accordingly, the Applicant respectfully requests that the Examiner not issue an Advisory Action that states that the Amendments presented herein will require additional searching.

With respect to the rejections asserted by the Examiner, the Applicant provides the following remarks.

Claims 1, 3-6, 12-14, and 16-24 are patentably distinguishable over Zhu et al. because they have been amended to recite a method for removing photoresist from a substrate comprising or a method of forming a feature in a dielectric layer on a substrate that combine a number of features including, for example, disposing or forming a dielectric layer comprising at least one of hydrogen silsesquioxane and methyl silsesquioxane. None of the references, either alone or in combination describe methods that include at least this feature. Accordingly, none of the references may be relied upon, either alone or in combination, to render any of claims 1, 3-6, 12-14, and 16-24 unpatentable.

As noted by the Applicant's previous response, Zhu et al. describes a nitrous oxide stripping process for a photoresist overlying a layer made from a material such as organosilicate glass ("OSG"). The method comprises feeding nitrous oxide (N_2O) into a reactor, generating a plasma in the reactor, and stripping the photoresist. (Zhu et al. at paragraph [0010]; see also Zhu et al. at Figs. 2 and 4.) There is no discussion in Zhu et al. of a dielectric layer comprising at least one of hydrogen silsesquioxane and methyl silsesquioxane. Accordingly, Zhu et al. cannot be relied upon as a base reference to reject any of claims 1, 3-6, 12-14, and 16-24.

Suzuki describes several different aspects of processing of a substrate. In paragraph [0039], Suzuki describes the deposition (by Chemical Vapor Deposition "CVD") of non-monocrystalline silicon including amorphous silicon (a-Si), microcrystalline silicon, polysilicon, or silicon carbide containing covalently bonded carbons. Each of the non-monocrystalline silicon examples would be considered by those skilled in the art to be inorganic materials. In paragraph [0040], Suzuki describes the deposition of Si compound based films such as Si_3N_4 or SiO_2. While Suzuki describes the use of inorganic silane (SiH_4) or organic silane (such as tetraethoxysilane (TEOS) to deposit these Si compound based films, the films that are deposited (i.e., Si_3N_4 or SiO_2) would be considered by those skilled in the art to be inorganic materials. Paragraphs [0041] and [0042] describe the deposition of metal films (such as Al, W, Mo, Ti, or Ta) or metal compound films (such as Al_2O_3, AlN, Ta_2O_5, TiO_2, TiN, or WO_3), all of which would be considered by those skilled in the art to be inorganic materials. While Suzuki describes the use of NO, N_2O, and NO_2 as gases for the ashing removal of organic components such as a photoresist, there is no

discussion of disposing or forming a dielectric layer comprising at least one of hydrogen silsesquioxane and methyl silsesquioxane. Accordingly, Suzuki cannot be combined with Zhu et al. to render obvious any of claims 1, 3-6, 12-14, and 16-24.

Concerning the rejections asserted by the Examiner with respect to the remaining two references, the Applicant respectfully submits that neither Mukherjee-Roy et al. nor Bao et al. assists the Examiner with a rejection of claims 1, 3-6, 12-14, and 16-24. Neither of these references provides any discussion that addresses deficiencies with respect to Zhu et al. and Bao et al. As a result, the two remaining references cannot be combined properly with Zhu et al. and Bao et al. to render any of the pending claims obvious.

Mukherjee-Roy et al. describes a method of forming a dual damascene pattern using dual bottom anti-reflective coatings. One of the steps described by Mukherjee-Roy et al. includes plasma etching of the inter-level dielectric ("ILD") film 34 and the bottom anti-reflective coating ("BARC") film 38. (Mukherjee-Roy et al. at paragraph [0029].)

With respect to the ILD film 34, Mukherjee-Roy et al. states that the ILD film can be either of organic or inorganic materials. (Mukherjee-Roy et al. at paragraph [0025].) Mukherjee-Roy et al. also states:

> Organic type materials include: porous or nonporous polymers such as, poly-tetrafluoro ethylene (PTFE), polyimide, low-k materials like SiLK, (Manufacturer: The Dow Chemical Company, Midland, Mich.), poly arylenes, cyclotenes, and teflons, and/or polyimide nanofoams. The inorganic and hybrid (combination of inorganic and organic components) type materials include: silicon dioxide, silicon oxy-fluoride (SiOF or FSG), spin-on glass (SOC), nanoporous silica, organo-silicate glass (OS), methyl silsesquioxane (MSQ), hydrogen silsesquioxane (HSQ), and/or silica aerogels.

(Mukherjee-Roy et al. at paragraph [0025].) While there is a discussion of HSQ and MSQ, the mere inclusion of these materials does not, by itself, assist the Examiner with a rejection of the claims. Mukherjee-Roy et al. includes no discussion of removing a photoresist from a dielectric layer using a plasma formed with a process gas comprising N_xO_y, wherein x and y are integers greater than or equal to unity. Without such a suggestion, it appears that the Examiner is applying hindsight

reconstruction to reject the claims. Accordingly, the Applicant respectfully submits that Mukherjee-Roy et al. cannot be combined properly with Zhu et al. and Suzuki to render obvious any of claims 1, 3-6, 12-14, and 16-24.

Bao et al. also does not assist the Examiner with a rejection of the claims because it also fails to cure the deficiencies noted with respect to Zhu et al. and Mukherjee-Roy et al. Bao et al. describes a method for forming openings in low-k dielectric layers. Etching of the via opening in the low-k dielectric layer 18 is performed with an ambient containing fluorocarbons or NH_3. (Bao et al. at paragraph [0039].) To remove the optional etch stop layer 16, O_2 is added to the fluorocarbon flow. (Bao et al. at paragraph [0040].)

Bao et al. does include discussion of quasi-organic low-k materials, which discussion is provided below.

> Quasi-organic low-k materials such as hydrosilsesquioxanes (HSQ) and fluorinated silica glass (FSG), low carbon polysilsesquioxanes, and organosilicate glasses (OSGs), for example Black Diamond.TM., from Applied Materials Corporation of Santa Clara Calif., have dielectric constants as low as 2.6-2.8. The low carbon polysilsesquioxanes are low density polysilicate glasses which contain alkyl or aryl groups in place of hydrogen.

(Bao et al. at paragraph [0018].) While there is a discussion of HSQ, the mere inclusion of this materials does not, by itself, assist the Examiner with a rejection of the claims. Like Mukherjee-Roy et al., Bao et al. includes no discussion of removing a photoresist from a dielectric layer using a plasma formed with a process gas comprising N_xO_y, wherein x and y are integers greater than or equal to unity. Without such a suggestion, it appears that the Examiner is applying hindsight reconstruction to reject the claims. Accordingly, the Applicant respectfully submits that Bao et al. cannot be combined properly with Zhu et al., Suzuki, and Mukherjee-Roy et al. to render obvious any of claims 1, 3-6, 12-14, and 16-24. As a result, Bao et al. cannot be combined properly with the remaining references to render obvious any of claims 1, 3-6, 12-14, and 16-24.

Each of the rejections having been addressed, the Applicant respectfully requests that the Examiner withdraw the rejections and pass this application quickly to issue.

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Respectfully submitted,
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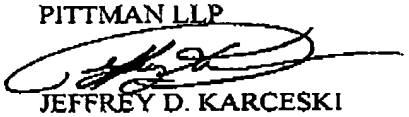

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